

Amendments To The Claims

The listing of claims will replace all prior versions and listings of claims in the application. The listing of claims present each claim with its respective status shown in parentheses. Only those claims being amended herein show their changes in highlighted form, i.e., insertions appear as underlined text (e.g., insertions) while deletions appear as strikethrough text (e.g., ~~deletions~~). All previously amended claims appear as clean text.

Claims 1 – 27 (Canceled).

Claim 28 (New) A method of non-invasively measuring a constituent of blood flowing within body tissue, the method comprising the steps of:

receiving at least first and second intensity signals from a light-sensitive detector that detects light of at least first and second wavelengths attenuated by body tissue carrying blood;

determining at least one of a set of fundamental and associated harmonic frequencies corresponding to an induced ventilator frequency; and

calculating a blood constituent according to first and second magnitudes of said first and second intensity signals corresponding to said at least one of said set of fundamental and associated harmonic frequencies.

Claim 29 (New) The method according to Claim 28, wherein said determining step comprises the substeps of:

transforming said at least first and second intensity signals into at least first and second frequency spectrums; and

detecting localized maximums for each of said at least first and second frequency spectrums.

Claim 30 (New) The method according to Claim 29, wherein said calculating step comprises the substeps of:

matching said localized maximums corresponding to said first frequency spectrum with said localized maximums corresponding to said second frequency spectrum so as to provide matched localized maximums; and

calculating ratios of said matched localized maximums to provide ratio lines.

Claim 31 **(New)** The method according to Claim 30, wherein said calculating step comprises the further substeps of:

separating ones of said ratio lines corresponding to said induced ventilator frequency;

averaging at least two of said separated ones of said ratio lines to provide an average ratio line; and

looking-up a blood constituent value corresponding to said average ratio line.

Claim 32 **(New)** The method according to Claim 28, wherein said determining step comprises the substep of inputting an indication of said induced ventilator frequency.

Claim 33 **(New)** A method of non-invasively monitoring venous blood oxygen saturation comprising the steps of:

transmitting optical radiation through a fleshy medium having ventilator-induced pulsing blood flowing therein, the optical radiation selected so as to be attenuated by said blood;

detecting said optical radiation after attenuation through the fleshy medium;

outputting an output signal indicative of optical characteristics of the fleshy medium; and

determining venous blood oxygen saturation based upon said output signal.

Claim 34 **(New)** The method according to Claim 33, wherein said determining step comprises the substeps of:

converting said output signal to a plurality of wavelength related spectrums in the frequency domain;

calculating ratios of said spectrums;

determining ratio lines from magnitude peaks corresponding to at least one of a ventilator frequency and harmonics of said ventilator frequency; and

outputting a measure of venous blood oxygen saturation responsive to said ratio lines.

Claim 35 **(New)** The method according to Claim 34, wherein said determining step comprises the substeps of:

- inputting an indication of said ventilator frequency; and
- separating pulse rate related ratio lines from ventilator-induced ratio lines.

Claim 36 **(New)** The method according to Claim 34, wherein said determining step comprises the substeps of:

- determining a pulse rate; and
- separating pulse rate related ratio lines from ventilator-induced ratio lines.

Claim 37 **(New)** The method according to Claim 34, wherein said outputting step comprises the substeps of:

- calculating an average ratio line from said ratio lines; and
- looking up a venous blood oxygen saturation value corresponding to said average ratio line.

Claim 38 **(New)** In a signal processor for processing first and second intensity signals from a light-sensitive detector that detects light of at least first and second wavelengths attenuated by body tissue carrying pulsing blood at least partially induced by a ventilator operating at a ventilator frequency, a method comprising measuring a blood constituent according to ventilator frequency related components of first and second intensity signals from a light sensitive detector that detects light attenuated by body tissue carrying pulsing blood at least partially induced by a ventilator operating at a ventilator frequency.

Claim 39 **(New)** The method according to Claim 38, wherein said measuring step comprises:

- converting said first and second intensity signals to first and second spectrums;
- calculating first and second magnitudes of said first and second spectrums;
- detecting first and second peaks of said first and second magnitudes;
- matching said first peaks to said second peaks according to nearest frequencies;
- calculating ratio lines according to matched peaks; and
- determining a blood constituent value in response to at least a portion of said ratio lines.

Claim 40 **(New)** The method according to Claim 39, wherein said determining step comprises separating ratio lines corresponding to a pulse rate from ratio lines corresponding to said ventilator frequency.

Claim 41 **(New)** The method according to Claim 40, wherein said separating step comprises inputting said ventilator frequency from said ventilator.

Claim 42 **(New)** The method according to Claim 40, wherein said separating step comprises determining said ventilator frequency from a measurement of respiration rate.

Claim 43 **(New)** The method according to Claim 40, wherein said separating step comprises measuring said pulse rate.

Claim 44 **(New)** The method according to Claim 40, wherein said determining step further comprises:

averaging ratio lines corresponding to said ventilator frequency; and
reading said blood constituent value from a look-up table according to said averaging step.

Claim 45 **(New)** The method according to Claim 44, wherein said blood constituent value is a measure of venous blood oxygen saturation.